

## Section 5. Crude Oil and Natural Gas Resource Development

The March 2003 rotary rig count was 941, 4 percent higher than the count in February 2003 and 23 percent higher than the count in March 2002. Of the total number of rigs in operation, 836 were onshore and 105 were offshore. For March 2003, the number of onshore rigs was up 29 percent and the number of offshore rigs was down 8 percent from the March 2002 count. Rotary rigs drilling for natural gas as a share of total rigs stood at 82 percent in March 2003.

Total footage drilled in March 2003 was 13.3 million feet, 1 percent lower than the footage drilled in February 2003 but up 29 percent from that drilled in March 2002.

The number of exploratory and development crude oil and natural gas wells drilled during March 2003 was 1,984, up 5 percent from the number drilled in February 2003 and

up 22 percent from the number drilled in March 2002. The number of crude oil wells drilled was 515, and the number of natural gas wells was 1,469, 18 percent higher and 24 percent higher, respectively, than their March 2002 levels.

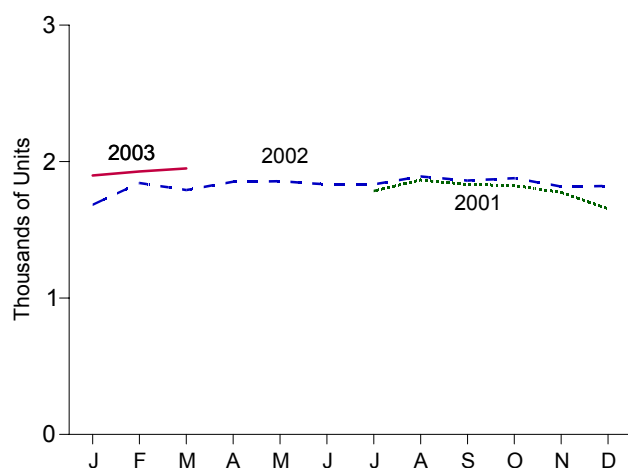
The number of dry holes drilled in March 2003 was 344, up 5 percent from the number drilled in February 2003 and up 22 percent from the number drilled in March 2002.

There were 2.0 thousand well service rigs active in March 2003, 1 percent higher than the previous month and 9 percent more than the count a year ago.

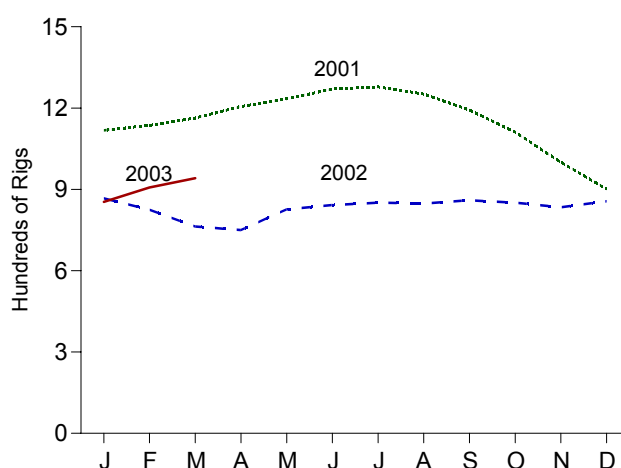
The number of seismic crews active in the 48 States onshore in March 2003 was 28, 7 fewer than a year earlier. The number of crews active in the 48 States offshore was 11, 6 fewer than a year earlier.

**Figure 5.1 Crude Oil and Natural Gas Resource Development Indicators**

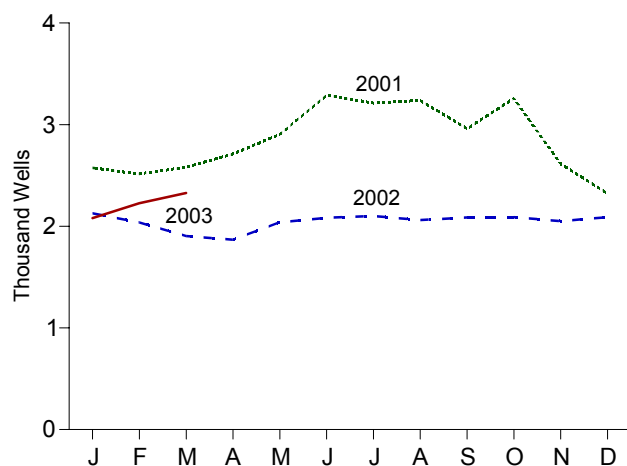
Active Well Service Rig Count



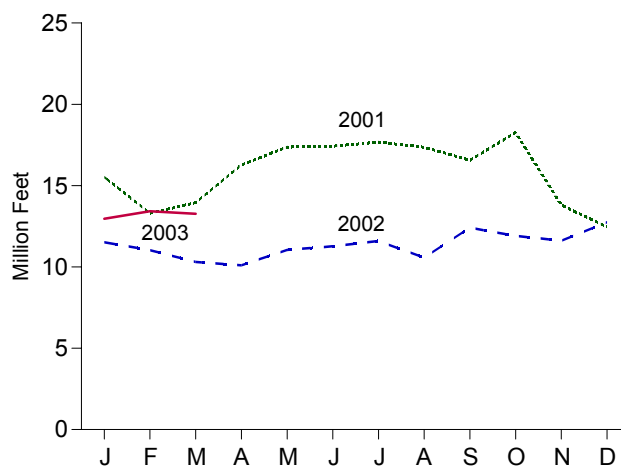
Rotary Rigs in Operation



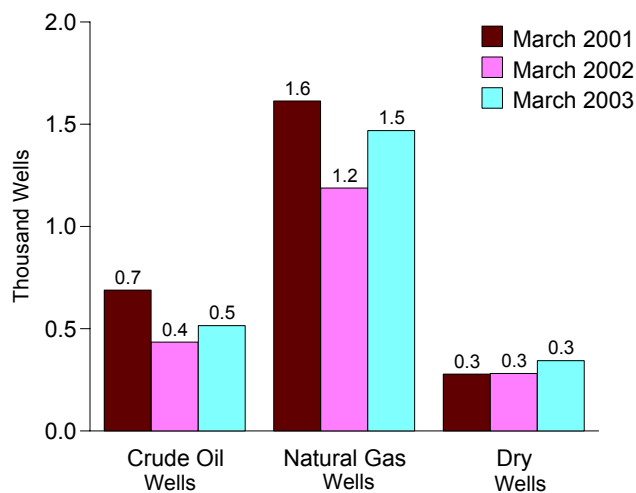
Wells Drilled



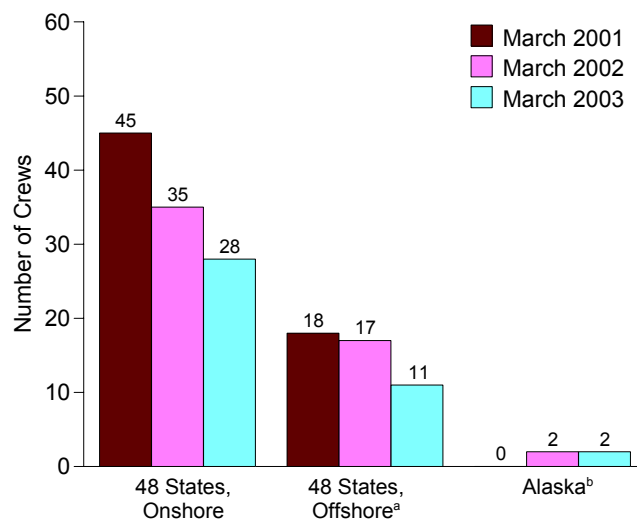
Footage Drilled



Wells Drilled by Type



Maximum U.S. Active Seismic Crew Counts



<sup>a</sup>Federal and State Jurisdiction waters of Gulf of Mexico.

<sup>b</sup>All onshore.

Web Page: <http://www.eia.doe.gov/emeu/mer/resource.html>.

Sources: Tables 5.1-5.3.

**Table 5.1 Crude Oil and Natural Gas Drilling Activity Measurements**

	Rotary Rigs in Operation <sup>a</sup>					Total Footage Drilled <sup>c</sup>	Active Well Service Rig Count <sup>d</sup>
	By Site		By Objective		Total <sup>b</sup>		
	Onshore	Offshore	Crude Oil	Natural Gas			
	Average					Thousand Feet	Number
1973 Average .....	1,110	84	NA	NA	1,194	138,223	NA
1974 Average .....	1,378	94	NA	NA	1,472	153,374	NA
1975 Average .....	1,554	106	NA	NA	1,660	180,494	NA
1976 Average .....	1,529	129	NA	NA	1,658	186,982	NA
1977 Average .....	1,834	167	NA	NA	2,001	215,866	NA
1978 Average .....	2,074	185	NA	NA	2,259	238,669	NA
1979 Average .....	1,970	207	NA	NA	2,177	244,798	NA
1980 Average .....	2,678	231	NA	NA	2,909	314,654	NA
1981 Average .....	3,714	256	NA	NA	3,970	413,112	NA
1982 Average .....	2,862	243	NA	NA	3,105	378,295	NA
1983 Average .....	2,033	199	NA	NA	2,232	317,986	NA
1984 Average .....	2,215	213	NA	NA	2,428	371,392	NA
1985 Average .....	1,774	206	NA	NA	1,980	313,045	NA
1986 Average .....	865	99	NA	NA	964	181,856	NA
1987 Average .....	841	95	NA	NA	936	162,178	NA
1988 Average .....	813	123	554	354	936	156,354	NA
1989 Average .....	764	105	453	401	869	134,439	NA
1990 Average .....	902	108	532	464	1,010	153,701	NA
1991 Average .....	779	81	482	351	860	143,021	NA
1992 Average .....	669	52	373	331	721	121,124	NA
1993 Average .....	672	82	373	364	754	135,118	NA
1994 Average .....	673	102	335	427	775	124,809	NA
1995 Average .....	622	101	323	385	723	117,832	NA
1996 Average .....	671	108	306	464	779	129,045	NA
1997 Average .....	821	122	376	564	943	156,661	NA
1998 Average .....	703	123	264	560	827	143,454	NA
1999 Average .....	519	106	128	496	625	99,410	NA
2000 Average .....	778	140	197	720	918	141,392	NA
2001 January .....	944	174	239	879	1,118	15,525	NA
February .....	973	163	237	898	1,136	13,296	NA
March .....	996	167	248	913	1,163	13,953	NA
April .....	1,037	169	247	957	1,206	16,268	NA
May .....	1,063	171	235	997	1,234	17,374	NA
June .....	1,107	163	219	1,050	1,270	17,418	NA
July .....	1,121	157	219	1,058	1,278	17,672	1,784
August .....	1,105	147	219	1,032	1,252	17,363	1,865
September .....	1,049	144	220	972	1,193	16,563	1,832
October .....	978	133	198	913	1,111	18,264	1,824
November .....	866	134	174	825	1,000	13,806	1,774
December .....	778	123	147	754	901	12,465	1,654
Average .....	1,003	153	217	939	1,156	189,967	NA
2002 January .....	741	126	141	725	867	11,513	1,683
February .....	702	123	144	679	825	11,031	1,843
March .....	649	114	144	617	763	10,303	1,791
April .....	645	105	136	612	750	10,102	1,852
May .....	721	105	134	690	826	11,039	1,856
June .....	732	110	138	704	842	11,274	1,832
July .....	740	111	133	716	851	11,590	1,832
August .....	737	111	125	721	848	<sup>R</sup> 10,576	1,891
September .....	746	114	122	736	860	12,410	1,861
October .....	740	111	140	709	851	11,907	1,878
November .....	725	109	146	683	834	<sup>R</sup> 11,612	1,817
December .....	742	114	137	714	856	12,747	1,821
Average .....	717	113	137	691	830	<sup>R</sup> 136,104	1,830
2003 January .....	743	111	132	718	854	12,962	1,898
February .....	797	110	153	750	907	<sup>R</sup> 13,429	1,928
March .....	836	105	171	767	941	13,269	1,950
3-Month Average ...	789	108	151	743	897	39,660	1,925
2002 3-Month Average ...	693	121	143	669	814	32,847	1,772
2001 3-Month Average ...	974	167	242	898	1,141	42,774	NA

<sup>a</sup> Rotary rigs in operation are reported weekly. Monthly data are averages of 4- or 5-week reporting periods, not calendar months. Multi-month data are averages of the reported data over the covered months, not averages of the weekly data. Annual data are averages over 52 or 53 weeks, not calendar years. Published data are rounded to the nearest whole number.

<sup>b</sup> Sum of rigs drilling for crude oil, rigs drilling for natural gas, and other rigs (not shown) drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests.

<sup>c</sup> Values shown are totals.

<sup>d</sup> See Glossary.

R=Revised.

Note: Geographic coverage is the 50 States and the District of Columbia.

Web Page: <http://www.eia.doe.gov/emeu/mer/resource.html>.

Sources: • **Rotary Rigs in Operation:** By Site - Baker Hughes, Inc., Houston, Texas, *Rotary Rigs Running--by State*. By Type - Baker Hughes, Inc., Houston, Texas, weekly phone recording. • **Total Footage Drilled:** Energy Information Administration computations, which are based on well reports submitted to the American Petroleum Institute by the Petroleum Information Corporation, Denver, Colorado. • **Active Well Service Rig Count:** Weatherford International, Inc., Houston, Texas.

**Table 5.2 Crude Oil and Natural Gas Wells Drilled**  
(Number of Wells)

	Exploratory				Development				Total			
	Crude Oil	Natural Gas	Dry	Total	Crude Oil	Natural Gas	Dry	Total	Crude Oil	Natural Gas	Dry	Total
1973 Total .....	642	1,067	5,952	7,661	9,525	5,866	4,368	19,759	10,167	6,933	10,320	27,420
1974 Total .....	859	1,190	6,833	8,882	12,788	5,948	5,283	24,019	13,647	7,138	12,116	32,901
1975 Total .....	982	1,248	7,129	9,359	15,966	6,879	6,517	29,362	16,948	8,127	13,646	38,721
1976 Total .....	1,086	1,346	6,772	9,204	16,602	8,063	6,986	31,651	17,688	9,409	13,758	40,855
1977 Total .....	1,164	1,548	7,283	9,995	17,581	10,574	7,702	35,857	18,745	12,122	14,985	45,852
1978 Total .....	1,171	1,771	7,965	10,907	18,010	12,642	8,586	39,238	19,181	14,413	16,551	50,145
1979 Total .....	1,321	1,907	7,437	10,665	19,530	13,347	8,662	41,539	20,851	15,254	16,099	52,204
1980 Total .....	1,764	2,081	9,039	12,884	30,875	15,252	11,599	57,726	32,639	17,333	20,638	70,610
1981 Total .....	2,636	2,514	12,349	17,499	40,962	17,652	15,440	74,054	43,598	20,166	27,789	91,553
1982 Total .....	2,431	2,125	11,247	15,803	36,768	16,854	14,972	68,594	39,199	18,979	26,219	84,397
1983 Total .....	2,023	1,593	10,148	13,764	35,097	12,971	14,005	62,073	37,120	14,564	24,153	75,837
1984 Total .....	2,198	1,521	11,278	14,997	40,407	15,606	14,403	70,416	42,605	17,127	25,681	85,413
1985 Total .....	1,679	1,190	8,924	11,793	33,439	12,978	12,132	58,549	35,118	14,168	21,056	70,342
1986 Total .....	1,084	793	5,549	7,426	18,013	7,723	7,129	32,865	19,097	8,516	12,678	40,291
1987 Total .....	925	754	5,049	6,728	15,239	7,301	6,063	28,603	16,164	8,055	11,112	35,331
1988 Total .....	855	743	4,693	6,291	12,781	7,812	5,348	25,941	13,636	8,555	10,041	32,232
1989 Total .....	607	705	3,924	5,236	9,597	8,834	4,264	22,695	10,204	9,539	8,188	27,931
1990 Total .....	654	689	3,715	5,058	11,544	10,355	4,598	26,497	12,198	11,044	8,313	31,555
1991 Total .....	592	534	3,314	4,440	11,178	8,992	4,282	24,452	11,770	9,526	7,596	28,892
1992 Total .....	493	423	2,513	3,429	8,264	7,786	3,605	19,655	8,757	8,209	6,118	23,084
1993 Total .....	502	548	2,469	3,519	7,905	9,469	3,859	21,233	8,407	10,017	6,328	24,752
1994 Total .....	570	726	2,405	3,701	6,151	8,812	2,902	17,865	6,721	9,538	5,307	21,566
1995 Total .....	542	570	2,198	3,310	7,085	7,784	2,877	17,746	7,627	8,354	5,075	21,056
1996 Total .....	483	570	2,136	3,189	7,831	8,732	3,146	19,709	8,314	9,302	5,282	22,898
1997 Total .....	428	536	2,110	3,074	10,008	10,791	3,592	24,391	10,436	11,327	5,702	27,465
1998 Total .....	291	504	1,647	2,442	6,773	10,804	3,193	20,770	7,064	11,308	4,840	23,212
1999 Total .....	154	539	1,195	1,888	4,022	10,338	2,169	16,529	4,176	10,877	3,364	18,417
2000 Total .....	264	609	1,288	2,161	7,094	15,846	2,737	25,677	7,358	16,455	4,025	27,838
<b>2001</b> January .....	19	74	101	194	669	1,480	231	2,380	688	1,554	332	2,574
February .....	29	76	94	199	599	1,511	206	2,316	628	1,587	300	2,515
March .....	24	51	90	165	665	1,563	188	2,416	689	1,614	278	2,581
April .....	28	81	127	236	649	1,610	217	2,476	677	1,691	344	2,712
May .....	28	84	136	248	736	1,678	241	2,655	764	1,762	377	2,903
June .....	31	89	128	248	717	2,067	258	3,042	748	2,156	386	3,290
July .....	31	89	153	273	651	2,070	218	2,939	682	2,159	371	3,212
August .....	27	104	132	263	670	2,056	248	2,974	697	2,160	380	3,237
September .....	18	82	119	219	619	1,925	198	2,742	637	2,007	317	2,961
October .....	29	90	144	263	764	2,011	220	2,995	793	2,101	364	3,258
November .....	20	88	131	239	549	1,651	175	2,375	569	1,739	306	2,614
December .....	26	53	89	168	462	1,500	192	2,154	488	1,553	281	2,322
<b>Total .....</b>	<b>310</b>	<b>961</b>	<b>1,444</b>	<b>2,715</b>	<b>7,750</b>	<b>21,122</b>	<b>2,592</b>	<b>31,464</b>	<b>8,060</b>	<b>22,083</b>	<b>4,036</b>	<b>34,179</b>
<b>2002</b> January .....	16	60	108	184	409	1,328	207	1,944	425	1,388	315	2,128
February .....	16	56	103	175	418	1,247	198	1,863	434	1,303	301	2,038
March .....	16	51	96	163	419	1,137	185	1,741	435	1,188	281	1,904
April .....	15	51	94	160	395	1,130	182	1,707	410	1,181	276	1,867
May .....	15	57	103	175	388	1,278	199	1,865	403	1,335	302	2,040
June .....	15	58	106	179	401	1,301	202	1,904	416	1,359	308	2,083
July .....	16	59	106	181	406	1,309	205	1,920	422	1,368	311	2,101
August .....	14	59	105	178	362	1,322	200	1,884	376	1,381	305	2,062
September .....	14	61	106	181	354	1,349	203	1,906	368	1,410	309	2,087
October .....	16	58	106	180	406	1,300	203	1,909	422	1,358	309	2,089
November .....	16	56	104	176	424	1,252	199	1,875	440	1,308	303	2,051
December .....	15	59	106	180	398	1,309	203	1,910	413	1,368	309	2,090
<b>Total .....</b>	<b>184</b>	<b>685</b>	<b>1,243</b>	<b>2,112</b>	<b>4,780</b>	<b>15,262</b>	<b>2,386</b>	<b>22,428</b>	<b>4,964</b>	<b>15,947</b>	<b>3,629</b>	<b>24,540</b>
<b>2003</b> January .....	15	59	106	180	383	1,316	202	1,901	398	1,375	308	2,081
February .....	17	62	113	192	444	1,375	216	2,035	461	1,437	329	2,227
March .....	19	63	118	200	496	1,406	226	2,128	515	1,469	344	2,328
<b>3-Month Total .....</b>	<b>51</b>	<b>184</b>	<b>337</b>	<b>572</b>	<b>1,323</b>	<b>4,097</b>	<b>644</b>	<b>6,064</b>	<b>1,374</b>	<b>4,281</b>	<b>981</b>	<b>6,636</b>
<b>2002 3-Month Total .....</b>	<b>48</b>	<b>167</b>	<b>307</b>	<b>522</b>	<b>1,246</b>	<b>3,712</b>	<b>590</b>	<b>5,548</b>	<b>1,294</b>	<b>3,879</b>	<b>897</b>	<b>6,070</b>
<b>2001 3-Month Total .....</b>	<b>72</b>	<b>201</b>	<b>285</b>	<b>558</b>	<b>1,933</b>	<b>4,554</b>	<b>625</b>	<b>7,112</b>	<b>2,005</b>	<b>4,755</b>	<b>910</b>	<b>7,670</b>

Notes: • These well counts include only the original drilling of a hole intended to discover or further develop already discovered crude oil or natural gas resources. Other drilling activities, such as drilling an old well deeper, drilling of laterals from the original well, drilling of service and injection wells, and drilling for resources other than crude oil or natural gas are excluded. Due to the methodology used to estimate ultimate well counts from the available partially reported data, the counts shown on this page are frequently

revised. See notes at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Web Page: <http://www.eia.doe.gov/emeu/mer/resource.html>.

Sources: Energy Information Administration computations, which are based on well reports submitted by the Petroleum Information Corporation, Denver, Colorado.

**Table 5.3 Maximum U.S. Active Seismic Crew Counts**  
(Number of Crews)

		48 States, Onshore				48 States, Offshore <sup>a</sup>				Alaska <sup>b</sup>				Total	
		Dimensions <sup>c</sup>			Total <sup>d</sup>	Dimensions <sup>c</sup>			Total <sup>d</sup>	Dimensions <sup>c</sup>			Total <sup>d</sup>		
		2	3	4		2	3	4		2	3	4			
2000	March .....	4	36	1	41	7	11	0	19	1	1	0	2	62	
	April .....	4	36	1	41	7	11	0	19	1	2	0	3	63	
	May .....	3	34	1	38	6	11	0	18	1	2	0	3	59	
	June .....	5	37	1	43	7	9	0	17	1	2	0	3	63	
	July .....	4	39	1	44	6	6	0	13	0	1	0	1	58	
	August .....	4	40	1	45	7	7	0	15	0	1	0	1	61	
	September .....	3	39	1	43	7	8	0	16	0	0	0	0	59	
	October .....	4	41	1	46	7	9	0	17	0	0	0	0	63	
	November .....	4	40	1	46	7	8	0	16	0	0	0	0	62	
	December .....	5	41	1	48	8	8	0	17	0	0	0	0	65	
	2001	January .....	5	38	1	44	9	7	0	17	0	0	0	0	61
		February .....	6	38	1	45	8	7	0	16	0	0	0	0	61
March .....		6	38	1	45	9	9	0	18	0	0	0	0	63	
April .....		7	39	1	47	9	9	0	18	0	0	0	0	65	
May .....		7	37	1	45	9	8	0	17	1	1	0	2	64	
June .....		6	35	1	42	9	7	0	16	1	1	0	2	60	
July .....		6	35	1	42	8	8	0	16	0	0	0	0	58	
August .....		8	32	1	41	7	8	0	15	0	0	0	0	56	
September .....		8	30	1	39	6	9	0	15	0	0	0	0	54	
October .....		5	33	1	39	9	10	0	19	0	0	0	0	58	
November .....		7	34	1	42	7	10	0	17	0	0	0	0	59	
December .....		7	33	1	41	8	9	0	17	0	0	0	0	58	
2002	January .....	6	32	0	38	8	6	0	14	1	1	0	2	54	
	February .....	9	31	0	40	9	6	0	15	1	1	0	2	57	
	March .....	9	26	0	35	10	7	0	17	1	1	0	2	54	
	April .....	7	25	0	32	9	7	0	16	1	1	0	2	50	
	May .....	8	24	0	32	9	8	0	17	1	1	0	2	51	
	June .....	9	23	0	32	9	7	0	16	1	1	0	2	50	
	July .....	8	26	0	34	8	8	0	16	1	1	0	2	52	
	August .....	7	26	0	33	8	7	0	15	1	1	0	2	50	
	September .....	9	28	0	37	10	7	0	17	1	1	0	2	56	
	October .....	8	30	0	38	10	7	0	17	1	1	0	2	57	
	November .....	8	27	0	35	8	5	0	13	1	1	0	2	50	
	December .....	8	22	0	31	7	4	0	11	1	0	0	1	43	
2003	January .....	8	19	1	29	8	4	0	12	0	0	0	0	41	
	February .....	9	20	0	29	8	4	0	12	0	0	0	0	41	
	March .....	8	20	0	28	7	4	0	11	1	1	0	2	41	

<sup>a</sup> Federal and State Jurisdiction waters of the Gulf of Mexico.

<sup>b</sup> All onshore.

<sup>c</sup> In **two-dimensional** (2D) reflection seismic surveying both the sound source and the sound detectors (numbering up to a hundred or more per shot) are moved along a straight line. The resultant product can be thought of as a vertical sonic cross-section of the subsurface beneath the survey line. It is constructed by summing many compressional (pressure) wave reflections from the various sound source and sound detector locations at the halfway sound path points beneath each location (common depth point stacking). In **three-dimensional** (3D) reflection seismic surveying the sound detectors (numbering up to a thousand or more) are spread out over an area and the sound source is moved from location to location through the area. The resultant product can be thought of as a cube of common depth point stacked reflections. Advantages over 2D include the additional dimension, the fact that many more reflections are available for stacking at each point, which provides greatly improved resolution of subsurface

features, and elimination of the "ghost" or "side swipe" reflections from nearby offline features that 2D surveys are prone to (except, of course, along the outer faces of the cube). **Four dimensional** (4D) reflection seismic surveying is the exact repetition of a 3D survey at two or more time intervals. The primary application of 4D is mapping the movement of fluid interfaces in producing oil and gas reservoirs.

<sup>d</sup> Includes crews with unknown survey dimension.

Notes: • "48 States" is the United States excluding Alaska and Hawaii. • Data are reported on the first and fifteenth of each month, except January when they are reported only on the fifteenth. When semi-monthly values differ for the month, the larger of the two values is shown here. Consequently this table reflects the maximum number of crews at work at any time during the month.

Web Page: <http://www.eia.doe.gov/emeu/mer/resource.html>.

Source: *World Geophysical News*, IHS Energy Group, Denver, CO. used with permission.

## Crude Oil and Natural Gas Resource Development

### Table 5.2 Notes

Three well types are considered in the *Monthly Energy Review (MER)* drilling statistics: “completed for crude oil,” “completed for natural gas,” and “dry hole.” Wells that productively encounter both crude oil and natural gas are categorized as “completed for crude oil.” Both development wells and exploratory wells (new field wildcats, new pool tests, and extension tests) are included in the statistics. All other classes of wells drilled in connection with the search for producible hydrocarbons are excluded.

Prior to the March 1985 *MER*, drilling statistics consisted of completion data for the above types and classes of wells as reported to the American Petroleum Institute (API) during a given month. Due to time lags between the date of well completion and the date of completion reporting to the API, as-reported well completions proved to be an inaccurate indicator of drilling activity. During 1982, for example,

as-reported well completions rose, while the number of actual completions fell. Consequently, the drilling statistics published since the March 1985 *MER* are Energy Information Administration (EIA) estimates produced by statistically imputing well counts and footage based on the partial data available from the API. These estimates are subject to continuous revision as new data, some of which pertain to earlier months and years, become available. Additional information about the EIA estimation methodology may be found in “Estimating Well Completions,” the feature article published in the March 1985 *MER*.

**Users of the well completion and footage figures published by the Energy Information Administration (EIA) prior to August 1998 should be aware that these data have been revised.** The published well completion and footage figures are produced by the Well Completion Estimation Procedure (WELCOM) based on drilling records provided under contract to the EIA. Problems in the files received by EIA necessitated revision of the historical series for well completions and footage drilled. Queries regarding this matter may be directed to William Trapmann (202-586-6408 or [william.trapmann@eia.doe.gov](mailto:william.trapmann@eia.doe.gov)).